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Moving Towards Risk-Based Supervision in Developing Economies

Thomas Fitzgerald

Robert Vogel

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For information contact:

CAER II Project Office

Harvard Institute for International Development

14 Story Street

Cambridge, MA 02138 USA

Tel: (617) 495-9776; Fax: (617) 495-0527

Email: caer@hiid.harvard.edu

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Thomas Fitzgerald and Robert Vogel

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Introduction

Advances in technology, the ability of money to move around the globe at the speed of light, innovative products and services, interrelations among economies, and a larger participation by developing countries have made the world of finance a far more complex place. Adding to this the liberalization that has occurred across the economic and financial spectrum in almost every part of the world raises a number of important questions, three of which are addressed in this paper:

Are government regulatory institutions, especially those in developing countries, keeping up with the pace of change?

Where does micro-finance, an innovation of special interest for development because of its promise of expanded access to financial services for the poor, fit into the regulatory scheme?

Can current regulatory techniques detect less-obvious risks—such as the foreign exchange risks that precipitated the recent crisis in Asia—that have become part of the new financial world?

The answer to the first question is “no”: government regulatory institutions, in most cases, are not keeping up with the rapid pace of change. At one end of the spectrum, exotic activities involving derivatives and hedge funds often require sophisticated approaches to assess risks and potential rewards. These approaches are beyond the capabilities of most bank examiners and usually require the talents of specialists. The answer to the second question lies at the other end of the spectrum. There is much debate but little consensus about where micro-finance fits into the regulatory scheme. Many regulators view micro-finance as a relatively unsophisticated area of finance, but in reality it requires considerable competence to practice and to supervise. The answer to the third question is, unfortunately, now well-known. Current regulatory techniques were not effective in detecting the risks associated with the foreign exchange inflows and the accompanying lending in foreign exchange that led to the recent economic problems in Asia and Latin America.

There is no doubt that alternatives to traditional forms of banking supervision need to be considered and, as countries develop and improve their supervisory capabilities, they will need to define the types of supervision that they want to practice. Traditional forms of supervision are important regulatory tools but have some severe limitations. In particular, they are labor intensive and narrow in focus, as they look at many transactions to assess the condition of individual financial institutions at a point in time. Although traditional forms of supervision will undoubtedly remain important tools in the repertoire of regulators’ approaches to supervision, more dynamic approaches to supervision will be needed as financial systems become more liberalized and developed. These approaches must be able to address not only the current condition of individual banks but also their likely future performance, including their managements’ ability to deal with risks caused by the economic environment over which they may have little or no control. Since banking systems usually reflect the economic environments in which they operate, regulators need to be able to translate economic

information into potential risk factors for the banking system (systemic risks). Risk-based supervision addresses these issues.

The objective of prudential regulation and supervision is a banking system that is safe and sound. This objective could be largely achieved by having banks hold only assets with as little risk as possible (e.g., only short-term government debt), but this would defeat another objective of the financial system—to provide financial services to facilitate economic efficiency and growth, and to spread the benefits of growth as widely as possible, especially through appropriate lending policies and practices. Risk-based supervision, practiced rigorously, can promote safety and soundness while also opening possibilities for innovation in order to facilitate the widest availability of financial services. For example, risk-based supervision treats mitigating risks and offsetting risks as valid approaches to risk management, whereas traditional forms of supervision tend to be biased in favor of risk-avoidance and hence against innovative products and services for new types of clients.

This paper provides insights regarding differences between traditional supervision and risk-based supervision, and suggests that risk-based supervision has a role in the supervision of financial institutions across the entire financial spectrum in developed as well as developing economies. Currently, outside the United States, there is no uniform approach to risk-based supervision. This paper was written in part to promote consistency in approaches and to add discipline to the subject by providing background information and outlining the basic elements that are at the heart of risk-based supervision. This is not a highly technical paper designed for bank supervisory personnel, but rather for policymakers interested in seeing improvements in regulatory effectiveness. Nonetheless, it attempts to be rigorous in explaining as precisely as possible in a relatively brief paper the key elements of risk-based supervision. It is well known that risk management is a crucial element of banking, and hence of banking supervision, but this paper goes on to recognize that, to be effective, risk-based supervision must embody certain basic elements. As the paper will show, risk-based supervision is not simply a matter of looking in some general way at the more obvious risks of banking.

The first part of this paper discusses and compares the characteristics and merits of traditional forms of supervision and risk-based supervision in their ability to achieve the objectives of safety and soundness on one hand and wider access to financial services on the other. The remainder of the paper looks at the riskiness of bank lending in two specific areas and the ability of supervision to detect this riskiness, and the resulting implications for access to credit. In the first case, the identification of problems like those that led to the Asian financial crisis shows that what appears to be low-risk lending may not in fact be so low risk and that excessive lending can occur; i.e., there can be too much access to credit, the risks of which may not be detected by traditional approaches to banking supervision. In the second case, recent innovations have developed new techniques for lending at low cost and low risk to potential small-scale clients, but these clients may nonetheless be denied access to credit if traditional approaches to banking supervision are applied.

A Brief Comparison of Traditional Supervision and Risk-Based Supervision

At the risk of oversimplifying the differences in approaches to supervision, traditional supervision focuses more on *quantifying problems and minimizing risks* in individual financial institutions, while risk-based supervision focuses more on the *quality of risk-management systems* and the *recognition of systemic risks to the banking system caused by the economic environment*.

The results of traditional supervision and risk-based supervision can vary greatly. Traditional supervision often results in quantifying problems, correcting symptoms of problems, and instructing banks to *avoid* risks that seem too high. Risk-based supervision assesses the quality of risk-management practices, addresses causes of problems, and makes recommendations that give banks options on how to minimize the adverse consequences of risk-taking. One of the options might be to allow banks to take the risks and experience the losses associated with the risks so long as banks charge interest and fees that more than offset the losses and thus yield a profit. The traditional approach tends to limit a bank's ability to serve the economic community's needs by limiting the risks a bank can take, whereas risk-based supervision allows banks to take risks so long as the banks demonstrate the ability to manage and price for risks. Risk-based supervision thereby allows banks to meet more of their economic community's needs. Traditional supervision tends to apply a cookie-cutter approach to supervision in which all banks are treated alike, often at the lowest common denominator. Risk-based supervision treats banks differently depending on each bank's demonstrated ability to manage risks. It does not penalize well-managed banks by making them operate under standards designed to keep weak, poorly managed banks solvent.

This paper does not suggest replacing traditional supervision with risk-based supervision in all instances. There are appropriate places for each approach. When bank supervisors are dealing with institutions that are known, or thought, to have serious problems that may threaten solvency, there is then a need to quantify problems, which can best be accomplished using traditional forms of supervision. Traditional supervision provides a snapshot of an institution's condition at a point in time. It is transaction-oriented and usually more labor intensive than risk-based supervision, thereby straining the scarce resources of most regulators. However, the worse the condition of a financial institution, the greater the need to quantify problems with precision. In healthy banks, where the likelihood of failure is not an issue, there is less need to quantify problems with great precision.

Risk-based supervision assigns the highest priority to areas of highest risk. Management of those areas is evaluated, along with systems designed to optimize income while managing risk and minimizing the adverse consequences of risk-taking. Transactions are tested to the extent necessary to validate the competence of management and the integrity of systems. It is important to evaluate the stability of management and systems in order to gain confidence that a bank will continue to operate in a safe and sound manner between supervisory inspections.

Historical Background: The Origins of Risk-Based Supervision

Banks are, by definition, in the business of taking and managing risk. For centuries bankers have assessed and managed risk intuitively, without the benefit of a formal and generally accepted framework or common terminology. For as long as there have been bank regulators, they too have assessed risk without the benefit of a formal framework and common terminology. This was possible because of the narrow scope of products and services offered by banks.

No longer is it sufficient to understand just the primary risks associated with a product or service. Secondary risks and obscure risks have accounted for significant losses in recent years. It can readily be observed that traditional methods for looking at risk are being strained and are often inadequate in today's environment.

On February 28, 1979, in a statement before the U.S. Senate Committee on Banking, Housing, and Urban Affairs, Comptroller of the Currency John G. Heimann announced the creation of the Multinational Banking Division within the Office of the Comptroller of the Currency. In that statement he announced in part “We are particularly proud of two fundamental innovations in our Office’s approach to bank examinations. We believe that our new examination procedures, which emphasize a qualitative review of a bank’s condition and management and rely heavily on the National Bank Surveillance System—a computer-based data and ratio-analysis system—represents an important advance in the state of the art.” The adoption of the “new examination procedures” was referred to as the top-down approach to supervision, while the more traditional (transaction analysis) approach was referred to as the bottom-up approach. Comptroller Heimann went on to say “An equally fundamental departure is our creation of a Multinational Banking Division, which will supervise our largest and most complex banking institutions. The establishment of what is, in effect, a new region for the regulation and supervision of the multinationals recognizes the reality that these entities are fundamentally different from the great majority of the institutions which we examine and supervise. . . .”

Because of the complexities and unique characteristics of multinational banks, one of the first responsibilities of the Multinational Banking Division was to develop new and more dynamic approaches to supervision. Two options were considered: develop individual examination procedures, tailored to the specific needs of each multinational bank, which would have been prohibitively time-consuming and would have required constant updating; or develop a supervisory framework that provides a consistent approach to all banks and, at the same time, is flexible enough to adjust to the many differences among banks and among the myriad of products, services, and activities banks provide. The latter prevailed.

After several months of assessing then-current practices, a meeting with senior bank examiners was held in San Francisco on February 27, 1980, to discuss new approaches to examining and

supervising multinational banks. At that meeting it was decided that examiners should relate the results of examinations to risk-exposure, specifically those risks that can have the most adverse impact on capital, liquidity, and compliance with laws, and to the potential effects that risks have on the future of the institution under examination. It was also decided at that meeting that examinations would focus on areas of highest risks. So began the road towards risk-based supervision.

During the mid- to late-1980s, the development of risk-based supervision was interrupted by the failure of hundreds of banks and thrift institutions in the United States. The Office of the Comptroller of the Currency and other regulators spent most of their resources quantifying problems in troubled institutions. Although regulators did not formally practice risk-based supervision at that time, elements of risk-based supervision were blended with traditional supervision. Regulators focused resources on institutions known to present the greatest risk to the financial system. Since the greatest risks were credit risks, large numbers of individual loans were reviewed in order to quantify problems and evaluate the adequacy of loan-loss reserves and capital. Traditional approaches were appropriate in these situations because it was already known that risks were high and that management and management systems were strained and, in many cases, inadequate.

After the debacle in the banking and thrift industries that occurred during the 1980s, regulators had a much greater appreciation of the importance of understanding systemic risks and the effects of the economic environment on individual institutions and banking systems as a whole. Moreover, as financial institutions returned to health, the importance of evaluating how well they are managed and the adequacy of their risk-management systems was also more fully appreciated. Risk-based supervision thus re-emerged and by 1994 became the preferred approach to supervision.

The work that started in the early 1980s to address problems associated with examining large, complex banks has resulted in what is today commonly referred to as risk-based supervision. In seeking a common approach to examining a group of widely diversified banks, the foundation was laid for developing a common approach to supervision that can be adapted to highly diverse banking systems. Just as risk-based supervision overcame the need to develop different approaches to examining large banks with different organizational structures and different approaches to delivering products and services, risk-based supervision also overcomes the need to develop different supervisory approaches for different types of financial institutions.

Four Recent Contributions That Enhance Banking Supervision

In recent years four advances have occurred that enhance banking supervision in general and risk-based supervision in particular. The first two are associated with the Bank for International Settlements in Basel, Switzerland: the Basle Capital Accord, and the Core Principles for Effective Banking Supervision, promulgated in September 1997 by the Basle Committee on Banking Supervision. The others are the CAMEL (Capital, Asset Quality, Management, Earnings, and Liquidity) bank rating system and the realization that collateral-based lending is not necessarily low-risk lending.

The Basle Capital Accord provides a more consistent approach to capital adequacy requirements by introducing a uniform set of international standards. The Core Principles for Effective Banking Supervision, promulgated by the Basle Committee on Banking Supervision, set out the minimum standards that are considered necessary for effective supervision. Several of the principles embrace risk-based supervision and encapsulate the concepts developed at the Office of the Comptroller of the Currency over the past twenty years. However, because the Core Principles is a brief document and covers a variety of topics, it cannot fully explain the key differences between risk-based supervision and traditional regulatory practices or provide a systematic explanation of all the basic elements that would enable a regulatory agency to implement risk-based supervision.

The CAMEL rating system for financial institutions has come into wide use in recent years and is generally considered to be an important tool for banking supervision. It is used to record the results of supervisory activities, but its use does not depend on a specific approach to banking supervision. Collateral-based lending has traditionally been perceived by many bankers to be low risk, and many supervisors in developing countries rely heavily on the existence of collateral to be able classify bank loans as low risk. As discussed below, however, collateral-based lending can have some unintended results.

The Basle Capital Accord

The Basle Capital Accord of July 1988 and subsequent amendments set out internationally agreed-on standards for determining capital adequacy. The Accord of 1988 defines what constitutes capital and assigns weights to various categories of assets and off-balance-sheet activities. Its primary benefits are that:

- , capital adequacy is evaluated from country to country using common measurements;
- , weightings are assigned based on perceived risks (e.g., the perception that little or no capital is required to support low-risk, highly liquid assets, while more capital is required to support the same amount of higher-risk, less liquid commercial loans); and
- , risks to capital are counted for capital adequacy purposes whether they appear on or off the balance sheet.

Prior to the Basle Accord there was no uniform approach among countries for determining capital adequacy. Most countries used what is commonly referred to as the capital leverage ratio. This ratio measures the amount in the capital account relative to total assets. Each regulator determined what could be included as capital (such as common stock, the types of preferred stock, reserves, etc.) and the minimum amount of capital that was acceptable. This approach to determining capital adequacy did not differentiate according to the quality and liquidity of assets. Therefore, when regulators required banks to decrease their leverage ratios, many banks simply reduced the amount of highly liquid, high-quality, low-yielding assets on their books. This improved the capital ratio but did not reduce the risks to capital and had the adverse effect of reducing liquidity. At the same time, banks also sought to improve their leverage ratios by shrinking their balance sheets in other ways. They started selling risk assets and engaging in activities that involved risks that did not appear on their books. By assigning different risk weights to assets, the Basle Accord removes the disincentive to carry large amounts of high-quality, highly liquid assets on the books, so that liquidity can be improved without adding stress to the capital base. The Basle Accord also captures categories of risk that are present but do not show on balance sheets.¹

Core Principles for Effective Banking Supervision, Promulgated September 1997 by the Basle Committee on Banking Supervision

The Central Bank Governors of the G-10 countries have endorsed the Core Principles for Effective Banking Supervision, including a Compendium.² The document states in part: “The Basle Core Principles comprise twenty-five basic Principles that need to be in place for a supervisory system to be effective. The Principles relate to:

Preconditions for effective banking supervision	Principle	1
Licensing and structure	Principles	2 to 5
Prudential regulation and requirements	Principles	6 to 15
Methods of ongoing banking supervision	Principles	16 to 20
Information requirements	Principle	21
Formal powers of supervisors	Principle	22
Cross-border banking	Principles	23 to 25

The document goes on to state that “The Principles are minimum requirements and in many cases may need to be supplemented by other measures designed to address particular conditions and risks

¹ The Basle Accord should not be confused with risk-based supervision. The Basle Accord assigns risk-weightings to broad categories of assets, but it does not prescribe a particular approach to banking supervision the way traditional approaches or risk-based supervision does. The Basle Committee on Banking Supervision offers many publications that deal with risks in banking systems.

² The Basle Committee also worked with country authorities not in the G-10 in developing the Principles.

in the financial systems of individual countries.” The total document, including appendices, is forty-four pages double-spaced and is an excellent document for building the framework for an effective supervisory system, but it does not go into great detail on any single subject. Principles 11, 12, and 13 are the most relevant to risk-based supervision.

Principle 11: Banking supervisors must be satisfied that banks have adequate policies and procedures for identifying, monitoring, and controlling country risk and transfer risk in their international lending and investment activities, and for maintaining appropriate reserves against such risks.

Principle 12: Banking supervisors must be satisfied that banks have in place systems that accurately measure, monitor, and adequately control market risks; supervisors should have powers to impose specific limits and/or a specific capital charge on market risk exposure, if warranted.

Principle 13: Banking supervisors must be satisfied that banks have in place a comprehensive risk-management process (including appropriate board and senior management oversight) to identify, measure, monitor, and control all other material risks and, where appropriate, to hold capital against these risks.

The present paper augments these Principles by defining the three dimensions of risk and the three methods for minimizing the adverse consequences of risk-taking. It also discusses the six categories of risks that have historically resulted in the overwhelming majority of losses in banking systems.³

CAMEL Financial Institutions Rating System

CAMEL is the most widely used financial institutions regulatory rating system in the world. The primary purpose of the CAMEL regulatory rating system is to identify financial institutions with greater-than-desirable levels of regulatory concern. In addition to the C, A, M, E, and L component ratings, there is usually an overall summary or composite rating for each institution. Composite ratings are used to identify institutions of concern, while component ratings isolate particular aspects of institutions that give rise to concerns. CAMEL in and of itself is not associated with any particular approach to financial institution supervision. It is used to record the results of a wide variety of reviews of financial institutions in both the formal and informal sectors.

Much of the world continues to use CAMEL, though in some highly developed countries an “S” has

³ Furthermore, the present paper deals primarily with financial risks, and thus there are some important risks that are not addressed. These are risks that are less financial in nature and, historically, have not been assigned responsibility for large losses in large numbers of banks. These include risks such as legal compliance risks and reputation risk and risks associated with strategic planning.

recently been added to CAMEL, resulting in CAMELS.⁴ The “S” has been added to capture the dynamics of financial markets that impact the institutions being rated. As financial instruments such as derivatives become more exotic, and imbedded risks become less obvious, the risks associated with these and other complex financial instruments need to be reflected in some way. The “S” also reflects an evaluation of stress tests performed to gauge the impact of market movements, both up and down, and of management’s overall ability to manage exposure. Whereas CAMEL ratings can be assigned using more traditional approaches to supervision, it would be difficult to assign accurate “S” ratings without using risk-based supervision.

Implicit in CAMEL ratings is the level of risks in financial institutions. Usually, the higher the risks in an institution, the more adverse the CAMEL rating. However, CAMEL is not a risk rating system. CAMEL does not focus on specific risks or actions taken to minimize the adverse consequences of risk-taking.

There are in fact three ways to minimize the adverse consequences of risk-taking:

- , *avoiding risk* involves not taking the risk or putting limits on the amount of risk to be assumed;
- , *mitigating risk* involves implementing internal controls and risk management practices and hiring people with greater levels of expertise; and
- , *off-setting risk* involves charging higher interest rates and fees for higher levels of risk and/or higher operating costs.

Regulators and institutions usually desire favorable CAMEL ratings, which means to many regulators lower levels of risk exposure. The easiest way to maintain lower levels of risk is to use *risk avoidance*. This stands in contrast to the other two ways of managing risks, which are *mitigating risks* and *offsetting risks*. Risk avoidance requires less skill for bankers and regulators than taking risks and managing them. Risk avoidance also tends to cause financial institutions to do two things: limit the scope of products and services offered; and exclude people at the lower end of the socioeconomic scale. On the other hand, financial institutions that understand how to manage risk can take greater risks and offer more products and services to a greater number of customers across the economic spectrum and, at the same time, remain profitable and maintain satisfactory CAMEL ratings. Regulators who understand how risk is managed can be more tolerant of institutions with higher risk-profiles accompanied by better risk-management systems. This has significant consequences for the less advantaged in societies, who are usually perceived as higher-risk customers, especially in the area of loan products.

In some developing countries, regulators take a critical view of unsecured lending because they view

⁴ “S” stands for Sensitivity to Market Risks.

it as a higher-risk form of lending. Often, when unsecured lending is observed, adverse CAMEL ratings are assigned. This approach has the effect of restricting the amount of credit available to small-scale entrepreneurs for whom formal documentation and collateral is neither available nor required for an adequate assessment and management of risk. Bankers and regulators usually take the position that collateralized lending is a less-risky form of lending, but there are a number of misconceptions regarding collateral-based lending.

Misconceptions about Collateral-Based Lending

There is a widespread perception that collateral-based lending is less risky than unsecured lending. Such thinking is especially prominent in developing countries, although it is not limited to them. Collateral-based lending is often used to mask deficiencies in financial institutions and regulatory agencies. Bankers and regulators who are not skilled credit analysts and who do not understand loan structuring often feel more comfortable with collateralized loans. By collateralizing loans, the burden of managing the risk is shifted to the borrower. Attempts to avoid risks by substituting collateral for sound credit judgement and credit risk management often lead to problems, as in the agricultural lending crisis in the United States in the 1980s. The crisis was caused in no small part by the false sense of security that came with collateral-based lending. Farmers eager to expand their operations bought land at inflated prices with expectations of lofty farm commodity prices. Both farmers and bankers took comfort in knowing that real estate provided underlying support for loans. When farm commodity prices failed to reach lofty expectations, collateral values plummeted to levels consistent with the income that the land could in fact generate at lower commodity prices. Many farmers and bankers failed, as the land could not generate sufficient income to repay loans; this was compounded when farmers and bankers tried to sell the collateral in crowded and depressed markets.

In developing countries, much of the lending done is secured by real estate as bankers and regulators perceive collateralized lending to be the least risky form of lending. Both want to minimize the risks associated with lending. The perception is that people are afraid of losing their real estate and will therefore repay their loans. Such thinking can lead to problems. The worst aspect of collateral lending is that it produces a false sense of security for bankers and regulators. Because of this false sense of security, some bankers fail to exercise the basic disciplines that are critical to sound lending and thereby risk doing harm to themselves by building unsound loan portfolios. Collateral lending can also be more harmful to borrowers than not granting them credit in the first place.

Some of the problems caused by having a false sense of security from collateral-based lending are:

- , Lenders rely on the value of the collateral and do not do a proper analysis of the borrower's finances.
- , Because lenders do not do a proper analysis of borrowers' finances, which includes

understanding the cash flows of borrowers, loans are not structured properly—payments are not matched to the point in time when borrowers have cash to make payments.

- , With loans to small, marginal borrowers, loan structuring is especially important because borrowers are living on low cash levels. If payments are due before borrowers have cash, borrowers will be unable to make payments. If payments are due too long after borrowers have cash, the cash will be diverted to other uses and will not be there when payments are due.

Efforts to strengthen individual loans, by relying on collateral, can result in less obvious and unintended weaknesses.

What happens when collateral-based loans are not structured properly? Often, high delinquencies result. High delinquencies are troublesome for a number of reasons:

- , Delinquencies bring into question the creditworthiness of borrowers and will probably make them appear to be poor credit risks the next time they apply for loans.
 - < Delinquency creates unnecessary stress for borrowers when they are unable to repay.
 - < Delinquency promotes bad habits and poor credit disciplines for borrowers who may be borrowing for the first time.
- , Collecting delinquent loans is expensive in terms of time taken from more productive endeavors.
- , Delinquency can cause liquidity problems.
 - < Since most funds for new loans come from the repayment of existing loans, fewer borrowers can benefit from available funds.
 - < In deposit-taking institutions, depositors may not have timely access to their funds.

Underwriting standards are the criteria used for granting credit, and loan structuring is matching loan payments with cash flows of borrowers. Failure to do appropriate credit analysis and loan structuring are two leading causes of loan problems and high delinquencies. There is nothing wrong with taking real estate as collateral, but it is not always necessary for sound lending. It should be taken out of an abundance of caution. It should not be relied on as the primary support for most loans. It should be

viewed as a secondary source of repayment and should not substitute for sound underwriting decisions and proper structuring. All lending should be done on a financially sound basis. This is true regardless of the size of the loan. Collateralized lending is not by definition less risky and, if not viewed properly, can produce a false sense of security and lead to poor lending practices.⁵

Differences between Traditional and Risk-Based Supervision

One of the easiest ways to explain the differences between traditional supervision and risk-based supervision is to use an analogy. Evaluating the health of a financial institution is similar to evaluating the health of a person. A person in generally good health goes to a doctor for an annual physical check-up. The doctor checks the vital signs, checks the functions of vital organs, checks for ailments that commonly afflict people who are the patient's age and gender, inquires about his or her lifestyle, eating habits, exercise habits, family history, etc., and makes a judgement about the health of the patient and about risk factors that may affect the health of the patient. The doctor usually will not spend a lot of time and resources running tests for possible ailments unless there are symptoms, high-risk factors, or other reasons to suspect specific health problems. On the other hand, if the patient is known or thought to be in poor health, or at high risk, the doctor will run many more tests in order to assess the health of the patient. Where health problems are detected, extensive testing will probably be done to evaluate the extent of the problems, the extent of the harm that has been caused, and the treatment necessary for healing.

The examination of a financial institution should be similar to the physical examination of a person. If an institution is thought to be in generally good health, the supervisory approach taken should differ from that taken if the institution is known or thought to be in poor health, or at high risk. If an institution is well managed and thought to be in generally good health, a risk-based approach is appropriate. The vital signs (the adequacy of capital, liquidity, and compliance with regulations) should be checked, functions of vital organs (performance indicators for the major functions of the institution, i.e., the loan portfolio, asset/liability management, liquidity, earnings, etc.) should be tested, risk factors should be evaluated, symptoms of problems assessed, and systems and management practices tested. Regulators should not spend a lot of time and resources running tests (doing detailed, transaction-oriented examinations) for possible problems unless there are symptoms, management weaknesses, or other reasons to suspect problems. The key phrase is "in well managed institutions." On the other hand, if an institution is known or thought, to be in poor health or at high risk, a more traditional or bottom-up approach would be appropriate. The regulator should do transaction testing in order to assess the health of the institution. Where problems are detected, extensive reviews should be done to evaluate the extent of the problems, the extent of the harm that has been caused, and the actions necessary for rehabilitation. Audit activities may even be necessary to define and quantify problems.

⁵ There are certain types of loans for which collateral is the primary source of repayment, such as loans for inventory and crop loans. For these types of loans, reliance on collateral may be more appropriate. Proper loan structuring is always appropriate.

Risk-based supervision saves regulatory resources and promotes a more safe and sound financial system. It saves resources because it focuses regulatory resources on areas of highest risk and usually requires substantially less transaction testing. It promotes a more safe and sound financial system because at the heart of risk-based supervision is an assessment of how well institutions manage risk. By getting institutions to do a better job of managing risks as opposed to correcting symptoms of problems, as is often the case with traditional supervision, regulators focus their actions on correcting causes of problems and thereby requiring improvements in management practices and management systems.

Risk-based supervision is a higher form of supervision than others. It is not practiced at the exclusion of traditional supervision. Like the doctor who detects symptoms or high-risk factors and prescribes extensive testing to determine the nature and extent of problems, regulators who find symptoms of problems or high-risk factors and less-than-satisfactory risk-management practices should do sufficient transaction testing to determine if problems exist and, if so, their nature, cause, and extent.

Traditional Forms of Supervision

If asked, most banking regulators would say their role is to maintain the safety and soundness of the banking systems for which they are responsible, for the purpose of promoting economic activity in the country where they are located. Safety and soundness are difficult to define because there are no limits to how safe or sound a financial institution can be, and therefore they are not easy points from which to start a discussion of banking supervision. It is easier to start the discussion at the other end of the spectrum. Banks fail for two reasons: either they run out of capital or they run out of liquidity (or they run out of both). Unsafe and unsound banking practices are practices that threaten a bank's capital or liquidity. Traditionally, regulators have used their powers to help banks avoid unsafe and unsound practices. Often this is done by telling banks to reduce or avoid risks that are perceived as threats to capital or liquidity. It is not a very sophisticated approach but neither are many of the traditional methodologies used in making these determinations.

In many countries that do not practice risk-based supervision, bank examinations are very closely tied to accounting and auditing principles. Traditional supervision often fails to account for the different levels of knowledge and confidence that regulators have regarding the institutions supervised, and therefore the same procedures and approaches are applied to all institutions almost equally. These are known as bottom-up examinations. Their primary focus is on the accuracy of the balance sheet, including loan loss reserves, the income statement, and the adequacy of traditional internal controls that are primarily designed to prevent fraud. Their primary objectives are balancing journals, reviewing large numbers of individual transactions such as loans, and quantifying problems based on the aggregate of transactions reviewed. This approach has merit for determining the current condition of a financial institution and quantifying current problems but provides little insight into future performance and does not put the onus of accurate record keeping and problem identification

and correction where it rightfully belongs, which is on management and the directorate. Also, corrective actions are often directed toward the symptoms of problems rather than the causes of problems.

Transaction reviews quantify problems as opposed to qualifying problems. This may seem like a subtle nuance— after all, a problem is a problem—but the supervisory reactions to each type are dramatically different. In cases where problems are quantified, the supervisory response is usually to take actions that are directed towards reducing the size of the problem. The trouble with this approach is that it usually addresses only the symptoms of the problem without addressing the causes of the problem. Therefore, even after problems seem to be resolved, there is a high probability that they will return. By contrast, top-down, and risk-based supervision focus on qualifying problems by identifying system flaws and poor management practices that cause both current or potential problems. Where problems are deemed to be significant, the supervisor may employ transaction analysis to quantify them in order to determine more precisely to what extent capital and liquidity are at risk and to prescribe appropriate remedies.

Bottom-up supervision requires a great deal of technical knowledge and skill, but is the least-sophisticated approach to financial institution supervision. It is labor intensive and strains the resources of most regulatory institutions that employ it. It usually does not differentiate among high-, medium- and low-risk activities. Because it often addresses the symptoms of problems instead of the causes, it frequently leads to remedies that promote reducing risks as opposed to employing techniques to manage risks better. Reducing risks is a form of avoiding risks that has a tendency to reduce the variety and volume of products and services offered to the public. This includes credit to small-scale borrowers who may be considered less creditworthy (discussed below in detail).

Bank examiners are not, or should not be, auditors. Examiners should be financial, risk, and compliance analysts. Assuring the accuracy of bank records is the responsibility of bank management, and assuring adequate audit coverage is the responsibility of the directorate. Regulators should use their powers to ensure that bank management and directors fulfill their respective responsibilities. To do otherwise strains scarce regulatory resources and runs counter to regulators' responsibilities to ensure that the financial institutions for which they are responsible are properly managed.

Risk-Based Supervision

Risk-based supervision is an enhancement of top-down supervision. Top-down supervision was developed in the 1970s. It focuses examination resources on an overall financial analysis of the financial institution under review, and it documents and tests policies, procedures, systems, and management practices. Unlike the bottom-up approach, transaction testing is done to test compliance with stated policies, procedures, systems, and practices, not for quantifying each problem disclosed without regard for significance. When problems are disclosed, corrective actions are directed toward

correcting the causes of the problems, not just the symptoms.

A common analogy used to describe top-down supervision is an assembly process for making boxes. If one wants to assure that quality boxes are produced, one can either examine every box produced and correct each individual defect, or one can take random samples of the boxes produced and, when a problem is identified, determine the cause of the problem and correct it. Fixing the cause of the problem will help ensure that boxes produced in the future are of high quality and will eliminate the need to devote resources constantly to correcting defective boxes.

If loan policy in financial institutions sets out certain underwriting criteria, a sample of loans would be reviewed to determine compliance with the criteria. Those same loans would also be tested for credit quality. If problems are identified, they would be defined and actions would be directed towards correcting the causes for the problems rather than just correcting the problems found in the individual loan. The problems with the individual loan are usually just symptoms of larger problems. If credit quality is determined to be the problem with the sample loans, but the loans are in compliance with underwriting standards, then changes in underwriting standards may be appropriate. At this point there is no attempt to quantify problems unless the examiner suspects that the problems are significant enough to undermine the safety and soundness of the institution. In the top-down approach, problems are identified and defined, and the root causes for the problems are addressed. If problems are identified that, in the opinion of the supervisor, significantly impact the safety and soundness of the institution, then bottom-up examination techniques may be necessary to quantify the problems in order to assess the adequacy of capital and liquidity.

Risk-based supervision enhances top-down supervision in three ways. First, it focuses supervisory resources on the areas of highest risk within individual financial institutions. Second, it uses a common framework and common terminology, developed specifically for risk-based supervision, to assess risks and evaluate management practices, policies, and procedures in the context of managing risks; that is, optimizing returns while minimizing the adverse consequences of risk-taking. Finally, it incorporates an assessment of management's ability to deal with risks beyond the control of management, such as systemic risks and risks in the economic environment in which the financial institution operates.

Risk-based supervision requires a greater understanding of the institutions being supervised and of the environment in which they operate. It requires an understanding of the risk profile of the institution under examination in order to identify areas of greatest risk and therefore deserving of greatest attention. It requires an understanding of the nature of risks, together with management's ability to deal with both internal and external risks. Once the areas of greatest risk have been identified, the examiner reviews the risk-management systems in those areas.

There are the four basic components of a risk-management system that are reviewed to assess

management's ability to manage risks:

- , identification of risks;
- , measurement of risks;
- , controlling risks; and
- , monitoring changes in risk profiles or changes in the corresponding controls.

At the heart of risk-based supervision is evaluating how well financial institutions manage risks. In order to understand risk-based supervision, one must first understand risk management. The following section provides an outline of elements that make up risk-management systems.

Basic Elements of Risk-Management Systems

Risk-based supervision has gained considerable popularity in recent years. It has been embraced in the Basle Core Principles and promoted by the World Bank and the IMF. Due in part to its newness, there is not yet a consensus on how to practice risk-based supervision. The three federal banking regulatory agencies in the United States (the Federal Reserve, the Federal Deposit Insurance Corporation and the Office of the Comptroller of the Currency) have adopted similar approaches. Other developed countries are in the process of adopting different approaches, according to unpublished drafts reviewed by one of the authors of this paper. One purpose of formalizing risk-based supervision in the United States was to develop a common framework and common terminology for practicing and communicating assessments of risks in the banking system. One of the purposes of this paper is likewise to increase the consistency of frameworks that are being developed as risk-based supervision spreads around the world.

The authors believe there are basic elements that should be understood by bankers and banking supervisors and incorporated in their respective approaches to risk assessment and risk management. These elements are a modest enhancement of the Basle Core Principles.

1. The six most common risk factors in financial institutions that account for an overwhelming majority of losses are:

- , Credit Risk
- , Liquidity Risk
- , Market Risk

- , Operational Risk
- , Interest Rate Risk
- , Foreign Exchange Risk

There are other risks that should be considered by bankers and banking supervisors, such as legal, reputation, and strategic risks. Although these are important categories of risk to consider in individual institutions, historically they have not accounted for large losses at a large number of financial institutions. Inflation risk is reflected in market risk and in interest rate risk. In highly inflationary economies, inflation risk may be broken out as a separate category of risk. Other significant risks peculiar to a particular institution or group of institutions should also be considered.

2. There are three dimensions of risk:

- , Size (Amount) of the Risk
- , Duration (Length of Time) of the Risk
- , Probability of Adverse Consequences

3. There are three ways to minimize adverse consequences of risk-taking:

- , Avoiding or Placing Limits on Certain Activities (Risks)
- , Mitigating Risks
- , Offsetting Risks

4. The four components of financial risk management are:

- , Identifying Risk—the categories of risk listed in element 1 above
- , Measuring Risks—understanding the dimension of risk listed in element 2 above
- , Controlling Risks—ways to minimize the adverse consequences listed in element 3 above
- , Monitoring Changes in Risks and Controls —developing reporting systems that

identify significant changes in risk profiles or controls of significant products, services, and activities.

The following is an explanation of the six most common risk factors in financial institutions that have historically accounted for an overwhelming majority of losses:

Credit Risk. Credit risk is the financial exposure resulting from an institution's dependence on another party to make or keep it whole. Credit risk usually occurs in assets shown on the balance sheet, but it can also appear in off-balance sheet accounts as some form of contingent obligation. It is acquired through actual or implied contractual agreements where an institution's funds are extended, committed, or otherwise exposed.

Liquidity Risk. Liquidity is traditionally defined as the ability of an institution to meet its obligations as they come due. This means an institution has the ability to accommodate a decrease in funding sources (i.e., deposits or borrowings), an increase in assets (i.e., loans or other commitments), and the ability to pay expenses as they come due.

Market Risk. Market risk is the potential adverse effect that external market forces can have on the value of an institution's assets, liabilities, and off-balance-sheet positions in marketable instruments, commodities, metals, etc. It arises from movements in markets. Inflationary expectations are usually reflected in market prices. However, in a highly inflationary environment, inflation risk should be broken out and treated as a separate category of risk.

Operational Risks. Operational risk is the exposure to loss resulting from the failure of a manual or automated system to process, produce, or analyze transactions in an accurate, timely, and secure manner.

Interest Rate Risk. Interest rate risk is the risk to an institution's net interest margin. The net interest margin is the difference between the amount of interest earned on assets (i.e., interest income from loans and investments) and the amount of interest paid on liabilities (i.e., interest expenses paid on deposits and borrowings). Interest income less interest expense equals net interest income or the net interest margin. Interest rate risk is the risk of not having sufficient interest income (and/or having excessive interest expenses) to maintain a net interest margin sufficient to pay expenses (salaries, rent, etc.), increase capital, and pay dividends.

Foreign Exchange Risk. Foreign exchange (FX) risk is the risk associated with doing business in two or more currencies. FX risk usually takes two forms: availability and price. FX availability risk deals with the degree of difficulty of converting one currency into another. This risk is highest in countries that have established controls to ration foreign

currencies. FX price risk results from adverse changes in values of the foreign currencies in which an institution is doing business. It may result in a direct loss to an institution if the institution has to reprice/revalue its assets and/or liabilities to reflect movements in currency values; or the risk may be indirect, that is, if a customer of a financial institution is doing business in two or more currencies and is adversely affected by currency value fluctuations, the adverse effect of fluctuations could indirectly affect the financial institution. This can be especially true if the financial health of a customer is affected, and the customer then experiences difficulty in repaying borrowings.

In order to understand thoroughly the risk profile of a transaction or portfolio of transactions, it is necessary to assess all three dimensions of each type of risk present. Assessing risk involves more than just measuring the amount of dollars at risk. The following is an explanation of the three dimensions of risk:

Size is the dollar (or other currency) value at risk.

Duration is the length of time for which an institution will be exposed. Usually the greater the length of time, the greater the probability that circumstances will change. Circumstances may change for better or worse, so that duration viewed in isolation is neither positive nor negative.

Probability of adverse consequences evaluates the likelihood of circumstances changing in such a way as to cause an institution not to achieve desired results. For example, if an institution lends to a financially weak customer, the probability of adverse consequences (loss or failure to perform as agreed) is greater than lending to a financially strong customer.

Risk management encompasses all of the activities associated with minimizing the adverse consequences of risk-taking. These activities can be divided into three categories:

- , avoiding risks;
- , mitigating risks; and
- , offsetting risks.

Understanding what these three categories encompass and the differences among them is at the heart of risk management. The following is an explanation of the three ways to minimize adverse consequences of risk-taking:

Risk avoidance is accomplished a number of ways. Policies outline, either directly or by implication, activities in which an institution will engage and those activities in which it will not engage. Placing prohibitions or limits on products or services is a way of avoiding risk or avoiding too much risk in a certain area. Conservative practices, in the absence of policies, are also a way of avoiding risks. This approach to minimizing the adverse consequences of

risk-taking is the most restrictive with respect to products and services offered by financial institutions and is the most unfriendly to small and marginal borrowers.

Mitigating risk encompasses steps taken, within a product or service, to reduce the adverse consequences of risk-taking. Mitigating risks usually involves additional direct or indirect expenses. Mitigating risk is often thought of in the context of internal controls. Without an accurate risk profile of a product or service, designing corresponding risk-management techniques and proper risk-management controls is difficult. The cost of steps taken to mitigate risks should be less than the potential adverse consequences of risk-taking. This is basic cost/benefit analysis.⁶

Offsetting risks involves taking risks and a willingness to take the losses associated with risk-taking, but charging interest and fees sufficient to cover losses and yield a profit. It may also involve using income from other activities to cover losses, as is usually the case with the introduction of new products and services.

The following is an explanation of the four components of risk management:

Identifying Risk. In order to manage risks, risks must first be identified. Almost every product and service offered by financial institutions has a unique risk profile composed of multiple risks. For example, at least four types of risks are usually present in most loans: credit risk, interest rate risk, liquidity risk, and operational risk (see element 1 above for the list of risk factors).

Measuring Risks. Once the risks associated with a particular activity have been identified, the next step is to measure the significance of each risk. Each risk should be viewed in terms of its three dimensions: size, duration, and probability of adverse occurrences (see element 2 above).

Controlling Risks. Once risks have been identified and measured for significance, there are basically three ways to control significant risks, or at least minimize their adverse consequences: avoiding or placing limits on certain activities/risks; mitigating risks; and/or offsetting risks (see element 3 above). It is a primary management function to balance expected rewards against risks and the expenses associated with controlling risks.

Monitoring Risks. It is up to management to establish management information systems (MIS) that accurately identify and measure risks (risk profiles) at the inception of transactions and activities. It is equally important for management to establish an MIS to monitor significant changes in risk profiles. A loan payment delinquency report reflecting

⁶ Often the terms “mitigating risks” and “offsetting risks” are used interchangeably. They are not interchangeable, as should be clear from the discussion in the text.

loans that are not paying as agreed is one report that indicates possible changes in perceived risk profiles. Since many financial institutions depend heavily on their net interest margins for survival, an MIS that reflects the impact of changes in interest rate risk is very important. In general, monitoring risks means developing reporting systems that identify adverse changes in the risk profiles of significant products, services, and activities and monitoring changes in controls that have been put in place to minimize adverse consequences

Good risk management is not an expense to be minimized; it is not even revenue-neutral; it is a revenue enhancement tool and therefore a capital enhancement tool. Good risk management allows an institution to operate with a high level of precision. Too much risk with too few controls results in loss. Too many controls and limits, given the corresponding risks, result in loss by incurring unproductive and unnecessary expenses and by foregoing opportunities. Understanding the risk profiles of products and services, and balancing them with actions taken to reduce the adverse consequences of risk-taking, allows an institution to optimize revenues and maximize the use of capital.

There will come a time when financial institution executives will expect their managers to develop accurate risk profiles for the products and services for which they are responsible. These risk profiles will reflect the multiple facets of risks discussed in this paper. They will also reflect the actions taken to avoid, mitigate, and/or offset risks, and will factor in the rewards expected to be gained. As a result, bank executives as well as regulators will be in a better position to assess the balance among risks, costs, and rewards and their impact on capital and liquidity.

Comparing Traditional and Risk-Based Supervision in Two Cases

The first part of this paper has been devoted primarily to comparing traditional regulatory practices with risk-based supervision at a conceptual level. For the remainder of the paper, the focus shifts to the effectiveness of risk-based supervision as compared to traditional practices in two cases that are currently of particular interest. It is argued below that the Asian financial crisis became a crisis rather than just a correction because of inadequacies in banking supervision; more specifically, it became a crisis because banks and their regulators were not fully aware of the exchange rate risks implicit in lending in foreign currencies to domestic borrowers operating in the non-tradable goods sector. What is then explored is whether risk-based supervision might have been better able than traditional regulatory practices to detect and deal with these risks. The second case is the regulation and supervision of financial institutions engaged in small-scale (micro) lending in developing countries. It is argued that traditional regulatory practices have typically focused on examining individual loan files for evidence of formal guarantees, collateral, and audited financial statements while neglecting the existence of systems to manage effectively the risks of such lending—thereby discouraging non-regulated institutions from becoming regulated and banks from engaging in micro-lending. In contrast, risk-based supervision, with its focus on risks and risk management, is said to be more open (but not more lenient) to the provision of micro-finance services within the regulated financial sector,

which potentially benefits low-income individuals, small-scale enterprises, and non-regulated institutions interested in becoming licensed.

Can Current Regulatory Techniques Detect Foreign Exchange Risk in Misplaced Dollar Lending?

As the recent Asian experience has shown (and the Latin American one before that) a country must be able to manage inflows of foreign exchange effectively. If the country simply accumulates more and more foreign exchange, the domestic money supply will grow (foreign exchange assets of the central bank and the banking system are balanced by liabilities—the money supply) and, as is all too well known, can cause inflation. If the country attempts to control impending inflation through restrictive monetary policies, domestic interest rates will rise and encourage even greater inflows of foreign exchange. If the exchange rate is flexible, inflows of foreign exchange may tend to push the exchange rate higher, thereby encouraging more inflows if there are expectations of continuing appreciation of the exchange rate. The combination of either higher inflation or a higher exchange rate, or both, makes export industries that have often been the key to rapid economic growth less competitive. However, since capital inflows and increasing stockpiles of foreign exchange are usually viewed positively, few governments have seen the need to implement policies to deal with potentially excessive capital inflows, or even to investigate how this might be done effectively. At least until recently, the risks that can be associated with large capital inflows have typically been underestimated.

Eventually, however, the combination of inflation and/or an overvalued exchange rate will hinder exports, so that a country's balance of trade (exports of goods and services less imports) will turn negative even though the balance of payments (which includes capital flows as well as goods and services) continues to be positive due to continuing capital inflows. Even with less-buoyant exports and increasing imports, the country's economic growth may continue unabated due to increased demand for domestically produced and consumed goods and services ("non-tradable") resulting from the changing terms of trade favoring non-tradable. In fact, in many countries, including Mexico and the Asian Tigers in varying degrees, this growth has even become a "boom" focused on urban real estate development in particular. Inflows of financial capital persist because the country continues to look highly attractive to foreign investors as the credible policies that produced high growth and good returns continue to be in place. Even the capital inflows themselves promote higher returns for foreign investors as long as the foreign exchange rate continues to appreciate. Rather than being viewed as a signal of an impending correction, the deteriorating balance of trade may initially be seen as an appropriate counterpart to the inflows of financial capital.

Even though most "experts" in investing, foreign or otherwise, now eschew "timing," it must nonetheless be conceded that at some point there will be a correction involving outflows of capital and a depreciating exchange rate. The question is whether such a correction—one that could well be deemed healthy for such a country—is likely to become a crisis. Earlier experiences in Mexico

and elsewhere in Latin America, and more recently in Asia, suggest that this depends largely on the foreign exchange position of the banking system. Banking regulators and bankers themselves have long been sufficiently sophisticated to understand that a balanced foreign exchange position is warranted to hedge risks; that is, assets denominated in foreign currencies should be sufficient to balance foreign currency liabilities. Thus, when dollars flow in and are deposited as dollars in the country's banking system, bankers and banking regulators understand the need for dollar denominated assets, and these have often taken the form of loans denominated in dollars. If these loans have been made to producers of tradable goods, especially exporters, these producers will actually benefit from a devaluation that is the essence of a correction. Thus, exporters will easily be able to repay their dollar loans. If, however, borrowers with dollar loans are in the non-tradable goods sector—and this is likely to be the case if the overvaluation has continued for a long time and has become substantial, thereby making non-tradables the more profitable sector—such borrowers will have great difficulty repaying dollar loans after the devaluation. The hedged position that bankers think they have is then illusory.

Urban real estate booms are just the most obvious examples of the imbalances that can develop when continuing substantial capital inflows are not dealt with effectively by government policies and are instead allowed to create a significantly overvalued exchange rate and thereby to promote a non-tradables sector that is unsustainably profitable for a moment. The subsequent collapse of the urban real estate market is often spectacular and thus subject to great finger-pointing after the fact. What is really important to understand beforehand, however, is that any lending in dollars to the non-tradables sector—be it urban real estate or something else—is essentially unhedged and hence highly risky. If banks implicitly have large unhedged foreign exchange positions through dollar loans to the non-tradable sector, they can easily be driven to insolvency by a significant devaluation of the exchange rate. Such bank insolvencies are likely to mean much higher interest rates for all borrowers, along with fiscal costs to the government that will ultimately be borne by taxpayers. Thus correction turns to crisis.

To what extent are bank regulatory authorities, using traditional approaches to banking supervision, aware of the implied foreign exchange risks that can turn a correction into a crisis? Even if the extent of dollar lending to the non-tradable-goods sector can readily be estimated, can traditional approaches to banking supervision detect foreign exchange risks of this type in the banking system? Can risk-based supervision offer any advantages in these cases for either industrialized or developing countries?

When banking regulators do a good job, it usually goes unnoticed. One of the primary missions of regulators is to maintain safe and sound banking systems that support economic activities in the countries where they are located. If they do their job well, problems are averted; and, when problems do arise, they are dealt with effectively with little or no fanfare. This makes it difficult to measure the effectiveness of regulators and the quality of supervision. It is impossible to measure problems that have been averted. It is impossible to measure what did not happen. On the other hand, it is

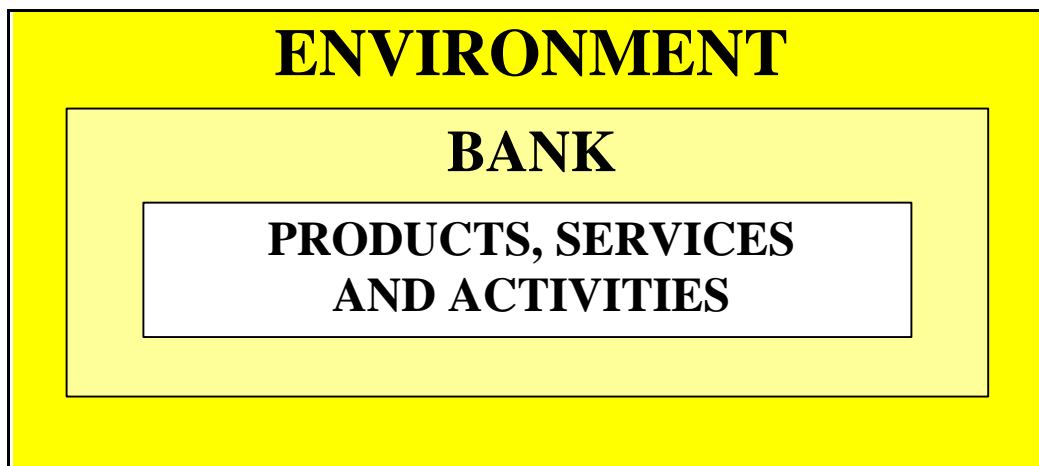
easier to identify shortcomings involving problems that were not averted. The current Asian crisis is a problem that was not averted. Many fingers have been pointed and questions asked as to whether it could and should have been recognized earlier and why no one saw it coming. Suggestions are being made that risk-based supervision might have helped financial institutions and countries identify the problem earlier and thereby soften the blow.

It is difficult to say with great certainty, but risk-based supervision probably would have done a better job of identifying this problem. Most modern-day banking crises typically have had one thing in common—an excessive allocation of capital to particular markets, whether the markets are defined by geography, type of lending, or industry. Traditional forms of supervision focus on individual institutions with little analysis of the economic environment in which they operate. Traditional supervision does not incorporate geographic and industry analysis into the assessment of an individual bank's products and services. Traditional supervision focuses on the internal operations of individual institutions. Risk-based supervision considers both internal and external factors that affect the conditions of individual banks and the banking system as a whole. One element of risk-based supervision is that it tries not only to identify systemic risks caused by the economic environment in which banks operate but also management's ability to deal with them.

Recent history is replete with examples of banking problems that have resulted from excessive concentrations of capital in certain markets. In the United States, for example, there was over-lending and over-investment in conglomerates (large diversified corporations) in the 1960s, and then in the mid-1970s there was over-lending and over-investment in real estate investment trusts (REITs), followed by over-lending and over-investing in less developed countries (LDCs), then petro-dollar recycling, then the energy sector, followed by the agricultural sector, then real estate again, and now the Asian economic crisis. In all of these cases, the markets started out highly profitable, thereby attracting more and more capital. As these markets grew, traditional regulators did little to measure the depth and other characteristics of these markets; instead they evaluated the primary exposures of individual institutions (i.e., the relationships between individual institutions and their customers).

To investigate whether risk-based supervision could have done a better job reducing the adverse consequences of these earlier events, and especially of the Asian economic crisis, three aspects of risk-based supervision are relevant:

- , Understanding the environment in which banks and banking systems operate;
- , Understanding the risk profiles of individual institutions;
- , Understanding the risk profiles of the products, services, and activities that make up the individual institutions (and aggregating the risk profiles developed in this step develops the point above, the risk profile of the institution).



It is important for regulators to understand the economic and political environments in which the institutions for which they are responsible operate. In the case of the Asian economic crisis, it would have been beneficial for regulators to know the amounts of the capital inflows, the amounts of the inflows that were in the form of debt and equity, how they were deployed, the sources for repayment of debts, and the likelihood of capital withdrawals. As discussed above, many banks that lent in the Asian market lent in hard currencies and therefore appeared to have relatively balanced foreign exchange positions, with little apparent foreign exchange risk. However, as also noted above, belying the apparent balanced foreign exchange positions were loans made and payable in hard currencies to borrowers whose incomes were in local currencies. The sudden withdrawal of capital caused local currencies to plummet, making the repayment of hard currency loans difficult in many cases and impossible in others. It is clear that traditional forms of supervision failed to detect the risks that led to the Asian economic crisis. The practice of risk-based supervision, which breaks down the component risks in the loans and capital investments that led to the crisis, would likely have done a better job recognizing risks that were not intuitively obvious.

Understanding the economic environment and the systemic risks caused by environmental factors requires skills that are beyond the present capabilities of many traditional banking regulators, and is not part of the focus of most traditional approaches to banking supervision. Identifying systemic risks often requires coordinating information from various private and government sources. This implies that regulators should have the capability to gather and interpret such information. Information on the economic environment is important for a number of reasons. When issues and concerns arise, regulators can issue advisories to the banking system.⁷ Also, information on the economic environment is important to field examiners in developing risk profiles of products and services and individual institutions since banking systems usually reflect the economic environments in which they operate. The lag factor is important to understand as the conditions of banking systems usually lag economic performance. It often takes months after an economic downturn to determine

⁷ With respect to regulators issuing advisories, care should be taken not to overreact to movements in markets and economic indicators. Advisories that cause banks to change their normal operating patterns dramatically can disrupt market activities and thus become self-fulfilling prophecies.

its impact on the banking system, and the reverse is also true, as it usually takes months after an economic recovery for the effects to be felt by the banking system. Over the past thirty years, lag time seems to be getting shorter. In the Asian economic crisis, the lag time was very short. Understanding the economic environment can provide regulators with information about emerging problems and, to the extent that lags exist, be used as a leading indicator regarding the probable future condition of the banking system.

Aggregating risk profiles for the products, services, and activities is the basis for developing overall risk profiles of individual banks. Developing risk profiles is not easy. It requires considerable knowledge, experience, and judgement. Also, it is not very precise. Institutions fall into three broad categories: high risk, medium risk, and low risk. In the United States, where all of the federal regulatory agencies employ risk-based supervision, summary risk profiles are not assigned to individual banks. Instead, regulators translate risk profiles into the more universally used CAMELS rating system. Perhaps as more countries, both developed and developing, move toward risk-based supervision, there will be a movement towards assigning composite risk ratings.

Using risk-based supervision techniques could potentially have helped identify problems as they emerged in Asia. Risk-based supervision assesses how well bank managers identify, measure, control, and monitor risks. For the loan portfolio of a bank lending in the Asian market, traditional supervision usually assesses only the primary risk associated with loan portfolios, which is credit risk. Since all products, services, and activities have profiles made up of multiple risks, risk-based supervision checks for the presence or absence of a minimum of six types of risks: credit risks, liquidity risks, market risks, operational risks, interest rate risks, and foreign exchange risks. Depending on a number of factors, regulators using a risk-based approach might have noticed that foreign exchange was a significant risk factor for the bank in question because it was a significant risk factor for major loan customers. Armed with better information about the economic environment, regulators using risk-based supervision might have been able to recognize the high-risk exposure. There is no assurance this would have happened, but it is certain that traditional approaches to supervision were not effective.

Regulatory Barriers to Incorporating Small-Scale Clients into the Formal Financial Sector

The complaint is often heard that banks fail to provide financial services, especially credit, to creditworthy small-scale clients. Bankers argue that smaller-scale clients are much more costly and risky to serve than large-scale clients. This may be true given the lending procedures that most banks employ to deal with their traditional market niche of large-scale clients. Documentation in the form of audited financial statements and collateral based on land or heavy equipment seems appropriate for reducing credit risk of large-scale clients.⁸ Such documentation can be relatively low cost if loans

⁸A focus on well-known persons as major clients can also seem like a basis for low-risk lending, but this can (and has)

are relatively large in size, but the fixed costs of external audits and formal collateral may loom large in the case of small loans. In addition, audit reports may reflect tax considerations more than economic realities and, as noted elsewhere, collateral may be of questionable value if it has to be seized and sold on the open market. Consequently, traditional bank lending practices may not be as low risk as they seem. At the same time, traditional banking supervision practices may tend to endorse, and hence solidify, these lending practices in ways that not only limit the availability of credit to small-scale clients but also fail to deal with risks as well as more appropriate alternatives such as risk-based supervision.⁹

An important innovation in finance has been spreading in developing countries during the 1990s that has called into question assumptions about the universal applicability of traditional bank lending practices and traditional approaches to banking regulation and supervision.¹⁰ Beginning mainly with nongovernmental, nonprofit organizations (NGOs), innovative techniques have been developed that allow lending to very small-scale clients (micro-entrepreneurs, in particular) on a profitable basis, so that these “micro-finance” NGOs can be sustainable without continuing subsidies from governments or donor agencies. In short, what was originally a charitable endeavor (credit for low-income micro-entrepreneurs), is becoming a profitable activity for micro-finance institutions, and even for banks, if they are able to adopt new lending techniques and are willing to charge market rates of interest that cover all costs including a margin for profit (and which micro-entrepreneurs have readily been willing to pay, if loans can be immediately available and hassle-free).

In most countries, these innovative micro-finance institutions are not licensed or regulated because they do not take deposits, but rather have been funded primarily by contributions from governments and donor agencies (and sometimes by bank borrowings and by retained earnings in the case of the more profitable NGOs). Nonetheless, in recent years many successful micro-finance institutions have become interested in deposit taking as a complement to the credit services they provide to their clientele and especially as a potentially major source of funding to expand their outreach. In almost all countries, however, this requires that they become licensed and regulated—which has often not been easy, in part because of high initial capital requirements, but also because of suspicions of banking regulatory authorities regarding the leadership of micro-finance institutions (e.g. that they lack interested ownership and management with real banking experience). Also in question is their ability and willingness to deal effectively with risks. At the same time, banks (with some notable exceptions such as BRI in Indonesia, Grameen in Bangladesh, and Bancosol in Bolivia) have remained highly skeptical of the possibility of doing micro-finance profitably, quite possibly because

led to high concentrations of bank credit portfolios in small numbers of large loans to firms and individuals who have close ties to the bank.

⁹ Collateral and documentation requirements that constrain credit for small-scale clients may not be just a reflection of perceived prudent banking practices but may also reflect bank regulation and supervision requirements.

¹⁰ At the same time, in more developed countries as interest rate spreads have narrowed for traditionally favored large-scale clients, many commercial banks have tended to move “down-market” (e.g. into consuming lending) where new techniques are required to manage risks and control costs—techniques that are distinct from, but have certain similarities to, those used in developing countries in lending to very small-scale, self-employed producers (micro-entrepreneurs).

the techniques for successful micro-lending are so different from traditional bank lending practices. In any case, the historical development of micro-finance has led to focusing regulation on the special characteristics of micro-finance institutions in comparison with commercial banks instead of the risk characteristics of micro-finance products and clients.

Dealing with micro-finance is only one aspect of the challenges facing banking regulators. The entry of financial intermediaries into new market niches inevitably involves new products and services and new financial technologies, all of which have different risk characteristics and techniques for managing risks effectively. Regulatory authorities, like the financial intermediaries they supervise, must be flexible with respect to such innovations and must develop approaches to examination and supervision that focus on the most important risks and how they are being managed. Consequently, the basic issue for regulators is to develop approaches that encompass new products, services, and clients in general, not just micro ones. If regulators focus on institutional peculiarities (capital and ownership in the case of micro-finance institutions) rather than on risk characteristics of clients and products, regulators are likely to be faced with increasing fragmentation in their approaches to supervision (and even a kind of institutional schizophrenia). There is thus a growing need to develop supervisory approaches that assess the management of risk regardless of the type of financial activity or institution. Risk-based supervision facilitates this type of supervision.

In order to understand the potential advantages of alternatives to traditional regulatory practices (risk-based supervision in particular) for dealing with risks without unnecessarily constraining access to credit, it is useful to begin by reviewing what are seen to be the key differences of micro-finance clients and products. The most typical micro-finance product is a very small loan, usually short term (almost always less than one year, unless the client is of long standing, and often less than ninety days). Most banks have developed lending practices that have relatively high fixed costs, but are nonetheless efficient for larger loans because they yield relatively low total costs. But these relatively high fixed costs make small loans unattractive. A view thus arose that small loans were necessarily high cost as well as high risk. However, the advent of viable micro-finance institutions has shown that high fixed-lending costs are not necessarily immutable and that innovative technologies can be found to lower these costs substantially. In addition, viable micro-finance institutions have often achieved rates of loan recovery that are equal to or better than those of successful banks, thereby calling into question the perceived high risk of micro loans. To understand how sustainable micro-finance institutions have developed low-cost, low-risk lending technologies that are substantially different from traditional bank lending technologies, it is necessary to understand some key characteristics of micro-entrepreneurs.

Two potentially problematic characteristics of micro-entrepreneurs are lack of traditional kinds of information about their businesses and lack of collateral to secure loans. Micro-entrepreneurs rarely have audited financial statements because this would be too costly and of little use to them. In fact, they often do not have written records of any kind. Moreover, given the close linkages between the household activities and the business activities of the typical micro-entrepreneur, written business

records would give only a very partial picture of the financial circumstances of the micro-entrepreneur. In addition, being in the informal sector, micro-entrepreneurs rarely file tax returns or have any kind of registration or license indicating that they are even in business. From the viewpoint of usable collateral, even if a micro-entrepreneur had an asset that a lender might, in theory, try to sell to satisfy a debt, it may not be possible to ascertain if the asset is in fact owned by the micro-entrepreneur and not subject to prior claims, albeit informal ones. Formalizing and registering such collateral would almost certainly make loans prohibitively expensive for micro-borrowers and lenders. If a micro-loan officer cannot expect to use collateral and formal documentation in a significant way in the decision process, it is difficult to see how these elements could be of much use to an examiner from a regulatory agency.

Just because traditional types of information and collateral are not available does not mean that information is not crucial for successful micro-lending. Loan officers almost always construct simple cash flow statements (but rarely balance sheets and income statements), but instead of looking for micro-borrowers to provide cash flow information, loan officers usually elicit such information through a series of questions that cover not only business but also household activities. In addition, loan officers will be very interested in the appearance not only of the business but also of the household (and the latter is facilitated by the fact that micro-enterprise activities are often carried on either in or adjacent to the house). Furthermore, with many successful micro-lenders, a trained and experienced loan officer (which he/she must be before being sent off alone) can approve a micro-loan on the spot, without recourse to higher-level managers or loan committees, and perhaps even disburse it then and there. This technique is used for two main reasons: timeliness has been found to be highly valued by micro-finance clients; and higher-level managers and loan committees cannot contribute effectively to the decision process through traditional review procedures. Much of the information collected by loan officers is based on appearances in the house and business location; it is also relative to the hundreds of other micro-entrepreneurs that a trusted loan officer would have already visited at some point in his or her career, so that it would be very difficult to convey such information in a way that could effectively be re-assessed by higher-level managers or a loan committee (or by bank examiners).

Because decision making is left largely in the hands of loan officers does not mean that loan officers should be unsupervised. As already indicated, he must be trained, must have substantial supervised experience, and must be given responsibility accompanied by the incentives (rewards and disincentives) that signify true responsibility. The other key to a decentralized system is the ready availability of management information required for monitoring and control. Just as successful micro-finance institutions have developed the information, monitoring, and control systems required for decentralized decision making, and accompanied these systems with appropriate responsibilities and incentives, so regulatory agencies might focus on these key elements in deciding if risks are adequately managed. A better understanding of micro-lending processes and the risks involved could change the task of regulatory agencies from examining thousands of individual micro-loans (with a close eye to evidence of collateral and formal documentation in credit files) to analyzing how

micro-lending institutions are providing loan officers with training, responsibility and incentives and, in turn, monitoring, evaluating and controlling their performance.

Interest in the regulation of micro-finance institutions has prompted much to be written on this topic (see the reference section at the end of this paper). Considerable emphasis has been placed on analysis of regulatory laws and norms and not on the ways in which these laws and norms are applied by regulatory agencies. In micro-finance literature, there are always discussions of laws and norms, but rarely any discussion of how these laws and norms are applied in practice by bank examiners. A main reason for the lack of attention to examination practices is that analyzing bank examination practices is a highly labor-intensive activity requiring a review of examiner working papers and/or actual participation in bank examinations.¹¹ Study costs can be especially high in the case of micro-finance examination practices because of the extreme scarcity of individuals who have the requisite experience and expertise in both micro-finance and banking regulation and supervision.

Even though there are virtually no studies that contain first-hand analysis of bank examination practices as they pertain to micro-finance, it can nonetheless be supposed that this may be a problem area. The standard approach to on-site bank examination, even as carried out by regulatory agencies that are regarded as advanced, may not be appropriate for micro-finance. Traditionally the vast majority of bank examiners' time and efforts at on-site examinations has been devoted to examining credit files—in particular, delinquent and problem loans, all loans over a certain size, and a stratified sampling of remaining loans. For a bank with a typical loan-size distribution, more than half of total loan amounts outstanding may be covered, and thus a similarly high proportion of all risk assets, since loans are likely to be the main category of risk assets. While such a procedure and allocation of time and effort may work well for a typical bank, this approach is clearly inappropriate for a bank that specializes in micro-lending, or for a micro-finance institution. First, without a very large sample, and hence a large allocation of time and effort, only a very small percentage of micro-loans will be examined. Second, since micro-lending decisions are not based in any significant way on traditional collateral or formal documentation such as audited financial statements, bank examiners will find little of interest in micro-loan credit files, perhaps just some very basic information on the micro-entrepreneur together with the loan officer's notes about past cash flows and estimates of future ones.

Are there alternative approaches to deal with the unfavorable cost-benefit relationship of traditional examination practices as applied to micro-finance that could also reverse the trend toward regulatory fragmentation caused by the heavy focus on the special characteristics of micro-finance institutions? Among the main characteristics of successful micro-lenders are loans

¹¹ Regulatory agencies may also be cautious about having outsiders analyze their examination practices even if the intent is to improve current practices. Banking secrecy laws may severely limit circumstances under which outsiders can observe examinations because this may imply having access to information deemed confidential under the laws and norms governing banking supervision. In addition, officials of banking regulatory agencies may be concerned that problems may be discovered in the banking system that had not previously been noted and that such problems may be ascribed to inadequacies in banking supervision.

with low administrative costs for the lending institution and low transaction costs for the borrower. These, together with the characteristics of micro-entrepreneurs and micro-loan products discussed above, imply that decision-making must be decentralized and that loan delivery must likewise be decentralized to the vicinity of the borrower. Such decentralization places heavy reliance on adequate systems, not only to convey information between the field and headquarters on all aspects of loans and borrowers, and especially on the repayment status of each loan, but also for monitoring and control purposes. For example, each loan officer in the field must have immediate access to the information required to map out and coordinate visits to existing borrowers whose payments are about to come due or overdue, along with visits to potential new borrowers. Also needed is information on the institution's current and perspective overall liquidity position. Officials at headquarters must have immediate access to information from the field to aggregate information needed to monitor loan officers' performance, and this information must be verifiable and protected from self-interested tampering. The importance of information systems for effective and efficient operating, monitoring, and control purposes suggests that these systems might be the main focus of examinations by regulatory agencies. Rather than examining individual loan files, it could be far more productive to examine information systems to determine if they are up to date, accurate, accessible, and adequately protected from unauthorized entries.

The characteristics of micro-finance imply that traditional approaches to examinations of micro-finance activities are excessively costly. Moreover, the different interpretations of risk management held by bankers on one hand, and supervisors on the other, can contribute to misunderstandings. For supervisors, managing risk often means simply avoiding risk, while bankers (at least good ones) understand that risks can also be managed by mitigating risks (through better personnel and information systems for monitoring and control) and/or by offsetting risks (through appropriate pricing, that is, charging higher interest rates and fees on micro-loans). As an alternative simply to improving current regulatory practices, it may be worthwhile to consider changes that can unify approaches to regulation and supervision, rather than introducing further fragmentation. The risk-based approach to supervision does this by providing a consistent approach to supervision that is flexible enough to be adapted to all financial products and services.

There is little argument over the fact that micro-finance products and services, especially micro-lending, are different from traditional banking products and services. Debate continues over exactly what those differences are and, as a consequence, many attempts have been made to describe them. As part of the debate, the argument is often made that risks are different for micro-finance and therefore there is a need for a different regulatory approach and different sets of rules for micro-finance institutions. Part of the debate derives from a lack of common terminology and subtle differences in the use of terms. For example, are the risks in micro-loans different from those in more traditional bank loans? The answer is not really. But ask the question another way: is the risk profile of micro-lending different from the risk profile of other types of bank lending? The answer is yes. The difference is in the risk profiles, not in the set of risk factors. This sounds like a subtle

difference, but it is crucially important for understanding the debate over the approach regulators should take in supervising micro-finance institutions and the micro-finance operations of commercial banks. Although the *set of risk factors* is basically the same for traditional bank products and services and micro-finance products and services, the weights within the set of risk factors are different and result in very different risk profiles. Regulators currently supervise financial institutions that have many different market niches. It can be argued that micro-finance is just another market niche and does not require special supervision and regulations.

All bank and micro-finance products and services have multiple risks in their profiles. One of those risks is always operational risk. To understand the differences in risk profiles for different products and services, it is necessary to break them down into their component parts. For example, as discussed above, there are six risks that account for an overwhelming majority of losses in financial institutions. The first and most obvious is credit risk. The others are operational risk (which includes operating costs), interest rate risk, liquidity risk, market risk, and foreign exchange risk. Market and foreign exchange risks are virtually nonexistent in most micro-finance activities.

Once the component risks have been identified, it is necessary to assess them on an individual loan and loan portfolio basis. For example, in a micro-finance institution the size of the credit risk associated with one micro-loan is very small (not the same as low) due to the size of the transaction, but the credit risk for the entire portfolio could be high, depending on the systems and processes in place. For a wholesale commercial bank (one that makes only large loans), the size of the credit risk associated with individual loans could be large and, as with the micro-loan portfolio, the credit risk for the portfolio could also be considered high. However, in the case of the wholesale commercial bank, operational risk may be low because of the number of eyes (controls) that look at each loan and check and double check the numbers, whereas in the micro-finance institution operational risk may be high for the opposite reasons. Therefore, by understanding the risk profiles and controls of the two examples, it would be appropriate for a regulator to take a different approach in the two institutions. In the micro-finance institution, more focus on systems and processes would be appropriate because of the small risk associated with individual transactions. In the commercial bank, more focus on individual loan transactions would be appropriate because of the higher risk associated with each loan, though operational risks would not be ignored.

Risk-based supervision is a framework that establishes common terminology and approaches to evaluating the management of risk in financial institutions. While it is a common approach, it is flexible enough to be adaptable to virtually all, if not all, financial products and services, and to institutions large and small. In the two examples above, the types of risks are the same, but the emphasis put on evaluating them would differ. This disaggregation of the risks that make up the risk profiles of individual products and services is at the heart of risk-based supervision. By un-blurring the risks that make up each product and service, managers and banking supervisors are better able to understand risk profiles and evaluate actions taken to minimize the adverse consequences of risk-taking. It is the responsibility of the management of each financial institution to understand the risks

associated with the business they are running and to take steps to minimize the adverse consequences of these risks. Risk-based supervision looks at how well management identifies, measures, controls, and monitors risks.

Risk-based supervision is a relatively new approach to supervising regulated financial institutions. While it is currently practiced in a consistent and systematic way by few regulators around the world, it is rapidly being recognized as the preferable approach to banking supervision. There is thus a need to bring more consistency among the regulators considering risk-based supervision and to familiarize more regulators with respect to the possible benefits of risk-based supervision. This could minimize the perceived differences in approaches needed to supervise traditional commercial bank activities compared to micro-finance activities, whether the micro-finance activities are in banks or in stand-alone institutions. It would also be helpful, for the sake of the debate over the supervision of micro-finance institution activities, if there were greater understanding that, while most financial products and services share a common set of risk factors, they can have very different risk profiles. The difference is in the risk profiles, not in the set of risk factors.

Conclusion

Although risk-based supervision is a relatively new approach to banking supervision and has not yet been applied widely outside the United States in a consistent and rigorous fashion, it is nonetheless gaining recognition as the preferred approach as indicated by its inclusion in the Basle Committee's Core Principles for Effective Banking Supervision. The purpose of this paper has not been to teach risk-based supervision to bank regulators but rather to familiarize government officials and the professional staffs of donor organizations as to what it is and how it can improve supervision in two cases: when risks are hidden, as in the implicit foreign exchange risk in dollar loans to the non-tradable goods sector that played a major role in the Asian crisis; and when lending may be unnecessarily limited, such as to micro-entrepreneurs who lack traditional collateral or written records.

The timeliness and potential importance of risk-based supervision and its accompanying analytical tools are clear from the emphasis currently being given by such donors as USAID and the World Bank, for whom initiatives to resolve systemic problems in banks and other financial institutions in developing and transitional economies have become a high priority. As this paper makes clear, however, risk-based supervision is not designed to solve the problems of failing banks. In fact, traditional, transactions-oriented approaches to banking supervision are more appropriate because they are designed to quantify as precisely as possible the extent of losses that will need to be covered in either rehabilitation or liquidation. Rather, the special usefulness of risk-based supervision is to identify ahead of time risks that may cause serious problems in the future and to assess the ability of bank management to deal with the risks identified. Donor officials and government policymakers will not have learned from reading this paper how to implement risk-based supervision in a target country, but hopefully enough detailed information has been provided to understand how far the

many countries that assert that they are already implementing risk-based supervision still have to go.

Among the important attributes and potential benefits of risk-based supervision discussed in this paper are that it:

- , Provides a framework that offers two distinct advantages:
 - (1) establishes common terminology and approaches to evaluate risk and risk management in financial institutions; and
 - (2) is flexible enough to be applicable to all financial products and services and to all types of financial institutions from large banks to small credit unions.
- , Considers external factors. Unlike traditional supervision, which focuses on the internal operations of a single institution, risk-based supervision considers external factors affecting not only individual banks but also the banking system as a whole.
- , Provides a regulatory environment in which banks are not just pushed to avoid risks but can also mitigate and offset risks as acceptable risk-management practices.

The case study of the Asian crisis shows that traditional supervision practices failed to detect risks that were hidden in the economic environment of an over-valued exchange rate supported by capital inflows. Risk-based supervision, if understood and practiced consistently, could have helped bank supervisors alert bank managers of the need to identify, measure, control, and monitor the risks that were incorrectly assumed to have been dealt with by simply balancing dollar deposits with dollar loans. The case of potential small-scale borrowers, on the other hand, shows that traditional supervisory practices can push regulated institutions in the direction of simply avoiding risks by requiring collateral and written records that these small-scale borrowers cannot often provide. Risk-based supervision allows a more flexible approach to such borrowers so long as the lender shows the ability to manage risks through appropriate systems and to offset risks by a willingness to charge interest rates that may seem high by traditional norms but are in fact not unattractive to small-scale borrowers because of low transaction costs.

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